Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
2000 Biennial Regulatory Review --	)	
Streamlining and Other Revisions of Part 25 of	)	IB Docket No. 00-248
the Commission's Rules Governing the Licensing	)	
of, and Spectrum Usage by, Satellite Network	)	
Earth Stations and Space Stations	)	

To: The Commission

Reply Comments of Spacenet Inc. and StarBand Communications Inc. In Response to Further Notice of Proposed Rulemaking

Mark P. Bresnahan
Vice President& General Counsel
Lesley Cooper
Senior Counsel
Spacenet Inc.
1750 Old Meadow Road
McLean, VA 22102
(703) 848-1000

John Chang
General Counsel
StarBand Communications Inc.
1760 Old Meadow Road
McLean, VA 22102
(703) 245-6430

April 8, 2003

Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
2000 Biennial Regulatory Review -- Streamlining and Other Revisions of Part 25 of the Commission's Rules Governing the Licensing of, and Spectrum Usage by, Satellite Network Earth Stations and Space Stations	)	IB Docket No. 00-248

To: The Commission

Reply Comments of Spacenet Inc. and StarBand Communications Inc.
In Response to Further Notice of Proposed Rulemaking

Spacenet Inc. ("Spacenet") and StarBand Communications Inc. ("StarBand") (collectively "Spacenet/StarBand"), hereby submit these Reply Comments ("Reply"). Specifically, this Reply supports and suggests modifications to certain comments filed on March 10, 2003 that take positions similar to those set forth in the Spacenet/StarBand Comments ("Comments"). Additionally, we reply to comments filed in response to the Further Notice of Proposed Rulemaking ("FNPRM")[1] in this proceeding that we believe are contrary to the public interest.

Proposed Regulation of TDMA/Aloha Random Access Techniques

Spacenet/StarBand are in agreement with the Satellite Industry Association's ("SIA") position that proposed regulation of TDMA/Aloha random access techniques is unnecessary, should not be pursued and would harm the VSAT industry. Additionally, as stated in our Comments, Spacenet/StarBand believe that this proceeding cannot and should

[1] *In re 2000 Biennial Regulatory Review—Streamlining and Other Revisions of Part 25 of the Commission's Rules Governing the Licensing of, and Spectrum Usage by, Satellite Network Earth Stations,* Further Notice of Proposed Rulemaking, 17 FCC Rcd. 18585 (2002).

not be viewed as an opportunity to adopt rules that will increase regulation of a competitive telecommunications market sector. Specifically, we reiterate our position that proposed treatment of TDMA/Aloha random access techniques and VSAT installation considerations would impose new and unnecessary regulations on the VSAT industry, and is not supported by the record of this proceeding. With respect to current TDMA/Aloha random access techniques, the majority of the commenters provide factual support for the Commission's own conclusion that no evidence of harmful interference has been demonstrated.[2] However, if the Commission determines that the public interest would be served by a more regulatory treatment of TDMA/Aloha random access techniques, despite the absence of record support that extends beyond mere speculation, Spacenet/StarBand advocate that the core proposal set forth in the Comments be enhanced by certain elements of the SIA comments, as further described below.

Our Comments present an alternate option for regulation of TDMA/Aloha random access techniques that incorporates the collision probability as a variable to provide a graduated approach that more accurately reflects TDMA/Aloha access scheme performance than a single probability reference, as proposed by the Commission. The proposal set forth in our March 10, 2003 Comments is as follows:[3]

> *Each earth station individually satisfies the power density limits of Section 25.134(a.);*
>
> *The maximum transmitter power spectral density of a digital modulated carrier into any GSO FSS earth station antenna shall not exceed the lesser of –14 dB(W/4kHz) or -14 + 2 x K – 10 Log$_{10}$ { N(K) } dB(W/4kHz), where N(K) is the smallest number of simultaneously transmitting co-channel earth stations in the same satellite receiving beam such that the*

[2] *See* Comments, pp 4 - 5. Spacenet/StarBand join with SIA in opposing specific VSAT installation proposals in this proceeding regarding pilot tone installation, location identification system and professional installation.

[3] *See* Comments at 17. Note a typographical error in the Comments has been corrected in the above. The Comments should have had a minus sign preceding the second "14" in the power spectral density ("PSD") formula. The corrected PSD formula reads "-14 + 2 x K – 10 Log$_{10}$ { N(K) } dB(W/4kHz)."

probability of an event with greater than N(K) simultaneous transmitters is less than 10^{-K} for integer values of K greater than or equal to one; and

The maximum duration of any single collision is less than 100 milliseconds.

Figure 1 of our Comments shows the graduated approach does not penalize TDMA/Aloha VSAT networks implemented with a lower collision probability and provides an upper bound that the Commission proposal does not.[4] Attachment A of this document provides additional clarification of the Spacenet/StarBand approach, which is also applicable to the Spacenet/StarBand Reply proposal, and a comparison to the Commission's FNPRM proposal.

Alternatively, SIA proposed a time averaging of collisions over the 100 millisecond interval as follows:[5]

*The maximum transmitter power spectral density of a digital modulated carrier into any GSO FSS earth station shall not exceed –14 – 10 log(N) dB(W/4kHz), where N is an integer. The number N is defined such that, during any 100 milliseconds interval, the probability that Q>N*100 milliseconds is less than 0.01, where Q = the accumulated transmission time of all co-frequency simultaneously transmitting earth stations in the same satellite receiving beam. The maximum duration of any single collision is less than 100 milliseconds.*

In this Reply, Spacenet/StarBand support combining the Spacenet/StarBand and the SIA proposals to take advantage of the benefits provided by the graduated function based on collision probability and time averaging. This combined proposal is as follows:

Each earth station individually satisfies the power density limits of Section 25.134(a.);

The maximum transmitter power spectral density of a digital modulated carrier into any GSO FSS earth station shall not exceed the lesser of –14 dB(W/4kHz) or -14 +2 x K – 10 Log_{10}\{ N(K) \} dB(W/4kHz), for any integer K greater than or equal to one, where N(K) is an integer. N(K) is defined such that, during any 100 milliseconds interval, the probability that Q > N(K) x 100 milliseconds is less than 10^{-K}, where Q equals the accumulated transmission time of all co-frequency simultaneously transmitting earth stations in the same satellite receiving beam.

[4] *See* Comments at 19.
[5] *See* SIA Comments at 18.

The maximum duration of any single collision is less than 100 milliseconds.

This combined proposal incorporates elements of both proposals and would enable current TDMA/Aloha network implementations to continue operations without disruption of service to the public.

With regard to the Commission's proposal to require a technical showing in new applications or modifications of compliance with access scheme regulations that may possibly be enacted by the Commission at some point in the future, Spacenet/StarBand support SIA's proposal that VSAT network applicants using random access schemes instead certify that their network implementation complies with applicable Commission Rules. Spacenet/StarBand believe that the proposal to require a technical showing for each application will be overly burdensome for both the applicant and the Commission. The requirement of a certification to this effect in applications places the burden of compliance on the applicant rather than requiring the Commission to analyze and confirm an applicant's data.

Furthermore, Spacenet/StarBand believe that comments filed by Aloha Networks regarding regulation of TDMA/Aloha access schemes is yet another attempt to impose regulatory restrictions on the most prevalent VSAT network access scheme technology without a supportable basis. It appears that Aloha Networks is attempting to change current regulatory treatment of ubiquitous VSAT systems using TDMA/Aloha technology to obtain a decisive advantage in marketing its proprietary Spread Aloha Multiple Access technology. As our Comments observed, the satellite industry's position on the Aloha Networks' highly restrictive proposals was fully represented in a previous *ex parte* to this proceeding. That *ex parte* is provided as Attachment B and accurately represents the position of Spacenet/StarBand regarding Aloha Networks' latest and previous comments and *ex parte* filings in this proceeding.

Routine Licensing of Submeter Ku-Band Antennas

Spacenet/StarBand believe that with key modifications, the revised SIA proposal regarding submeter licensing can form a workable process that can be used to routinely license submeter Ku-band antennas. Additionally, Spacenet/StarBand support the initial position of SIA regarding relaxation of the regulation for off-axis angle compliance to 1.5° from the current 1.25° to routinely license Ku-band antennas.[6] However, Spacenet/StarBand believe key modifications are required to SIA's revised proposal for antennas that are compliant with the near-in "29 – 25 Log (theta) dBi" gain between 1.5° and 1.8° off-axis. Without the modifications suggested below, SIA's proposal has serious practical limitations.

For antennas that begin off-axis gain compliance from 1.5° to 1.8° off-axis Spacenet/StarBand propose that the applicant certify in its application that its installation techniques will provide a nominal pointing accuracy of better than or equal to "0.3° + y", where "y" is the off-axis gain compliance angle better than 1.8°.[7] Spacenet/StarBand believe this proposal is a fair and reasonable compromise between SIA's and Spacenet/StarBand's positions in their respective FNPRM comments.

Spacenet/StarBand will be directly affected by a rule for antennas that begins compliance between 1.5° and 1.8° off-axis. Spacenet has licenses for the Channel Master 89 x 62-cm and 96-cm antennas and has applied for the 98-cm Prodelin antenna that begin compliance between 1.5° and 1.8° that are referenced in the SIA comments. Applications to modify these licenses are expected in the future and therefore would be subjected to regulations enacted in this region.

---

[6] 47 C.F.R. § 25.209(g) begins off-axis gain compliance evaluation at 1.25° for 1.2 meter Ku-band antennas.

[7] *See* Comments, ATTACHMENT A for supporting technical analysis. An example the Spacenet/StarBand proposal is if an applicant's antenna begins compliance at 1.7° off-axis then the applicant will certify that their nominal antenna installation pointing accuracy is 0.4° or better.

Additionally, the Prodelin 98 x 56-cm antenna referenced in the SIA comments, which is compliant at 1.5°, is proprietary to SIA member Hughes Network Systems.

"Coordination" with adjacent satellite operators is not the responsibility of the VSAT industry, and should not be used to their detriment by making licensing of earth stations dependent on negotiations among satellite providers that do not involve VSAT operators. SIA's alternative proposal, for a technical showing is also not practical as organizations have dedicated significant resources to antenna alignment techniques and thus, could in effect require VSAT operators to submit proprietary technical information to the Commission, creating substantial new administrative burdens.

Finally, Spacenet/StarBand support SIA's proposal for routine licensing of Ku-band antennas based on the transmit antenna off-axis gain performance and not the receive performance.

Conclusion

For the reasons set forth above, Spacenet/StarBand support the Commission's initiative to streamline the application process in order to promptly and routinely grant applications for VSAT facilities using submeter antennas. However, as explained in our filings to this proceeding, we believe that several proposals submitted by the industry and put forward by the Commission would impose more stringent regulations on the industry than are currently in place and would disserve the public interest by unnecessarily restricting or burdening the ability of VSAT operators to provide desirable services, such as broadband Internet access. As previously noted extensively in this proceeding, the interest of the industry in providing high quality services that are competitive with other technologies will provide adequate assurance that there is no material degradation in service to the public.

Respectfully submitted,

___/s/ Mark P. Bresnahan
Mark P. Bresnahan
Vice President & General Counsel
Lesley Cooper, Senior Counsel
Spacenet Inc.
1750 Old Meadow Road
McLean, VA 22102

/s/ John Chang
John Chang
General Counsel
StarBand Communications Inc.
1750 Old Meadow Road
McLean, VA 22102

April 8, 2003

Attachment A

Clarification of Spacenet/StarBand March 10, 2003 TDMA/Aloha Proposal

The Spacenet/StarBand TDMA/Aloha VSAT antenna input power density proposal formula is shown below:

If –14 + 2 x K – 10 Log[N(K)] > -14 Then -14 dB(W/4kHz), Else –14 + 2 x K – 10 Log[N(K)] dB(W/4kHz)

where: K is an integer with values greater than or equal to one, i.e. K = 1, 2, 3…

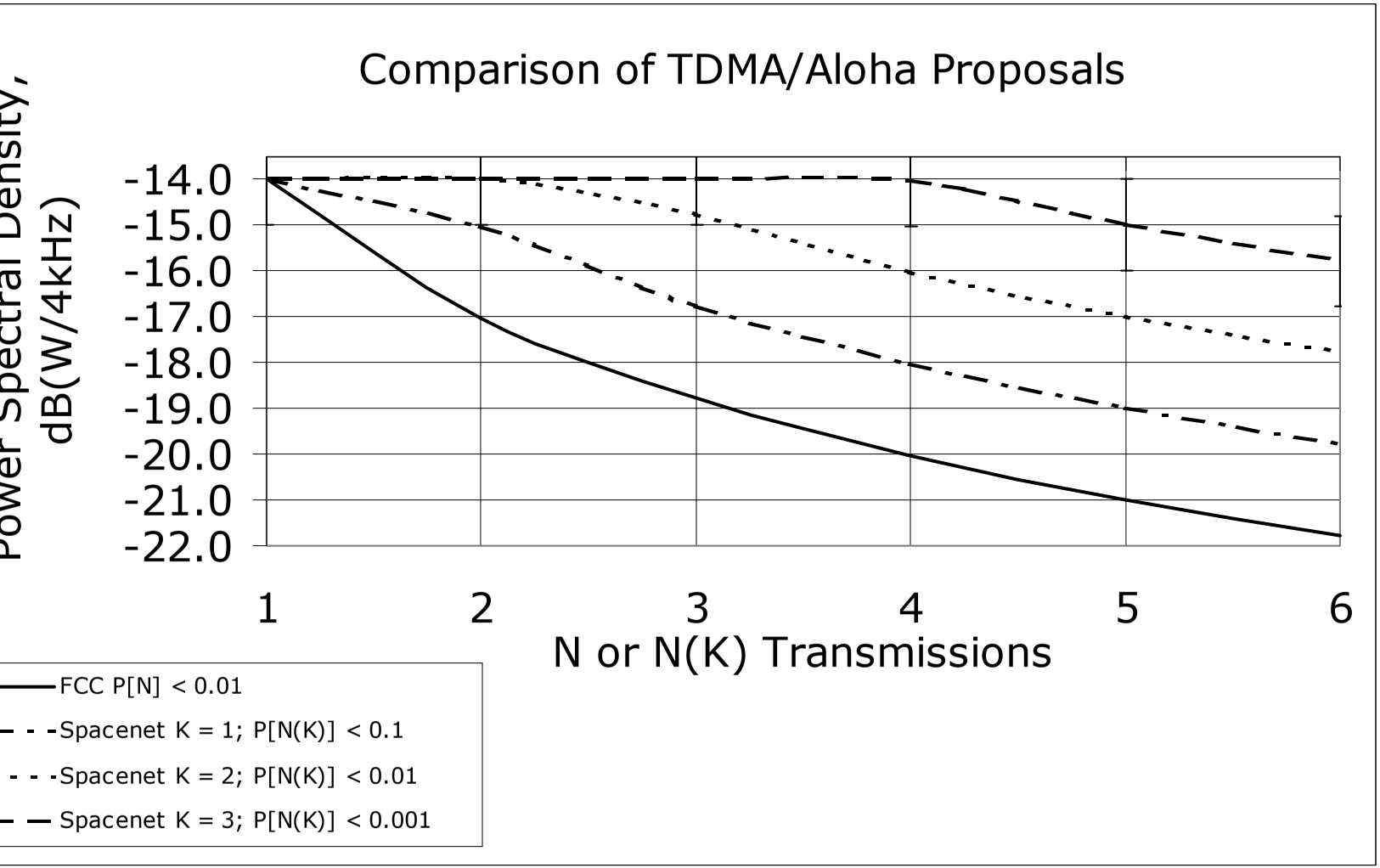
N(K) is an integer defined as the smallest number of simultaneously transmitting co-channel earth stations in the same satellite receiving beam such that the probability of an event with greater than N(K) simultaneous transmitters is less than 10^{-K}

The below table shows the maximum antenna input power spectral density (PSD) for the FCC and the Spacenet/StarBand proposals for various values of N and K:

FCC Proposal for P(N) < 0.01		K	Probability 10^-K	K	Probability 10^-K	K	Probability 10^-K
-14 - 10Log (N)	N	1	0.1	2	0.01	3	0.001
-14.0	1	-14.0		-14.0		-14.0	
-17.0	2	-15.0		-14.0		-14.0	
-18.8	3	-16.8		-14.8		-14.0	
-20.0	4	-18.0		-16.0		-14.0	
-21.0	5	-19.0		-17.0		-15.0	
-21.8	6	-19.8		-17.8		-15.8	

The following figure provides a graphical comparison of the FCC proposal, which would adversely effect operational TDMA/Aloha networks that are not causing interference, and proposals set forth in Spacenet/StarBand's March 10, 2003 Comments that will

accommodate existing networks and provide a graduated PSD limitation based on collision probabilities for the values shown in the above table.


Comparison of TDMA/Aloha Proposals
Power Spectral Density, dB(W/4kHz)
-14.0
-15.0
-16.0
-17.0
-18.0
-19.0
-20.0
-21.0
-22.0
1
2
3
4
5
6
N or N(K) Transmissions
FCC P[N] < 0.01
Spacenet K = 1; P[N(K)] < 0.1
Spacenet K = 2; P[N(K)] < 0.01
Spacenet K = 3; P[N(K)] < 0.001

Attachment B

Proceeding: *00-248* **Type Code:** *NO* **Date Received/Adopted:** *07/16/02* **Date Released/Denied:** **Document Type:** *NOTICE* **Total Pages:** *6* **File Number/Community: DA/FCC Number: Filed on Behalf of:** Hughes, Loral, PanAmSat, SES Americom, StarBand, Spacenet **Filed By:** *Latham & Watkins* **Attorney/Author Name:** *Dori K . Bailey* **Document Date: Complete Mailing Address:** *555 Eleventh Street, N.W. Suite 1000 Washington, DC 20004* NOTICE